A Report On
Montana Pension Fund Investments

To: State Administration & Veterans' Affairs Committee

By: Carroll South, Executive Director
Montana Board of Investments

Date: October 20, 2011

STATE ADMINISTRATION/VETERANS' AFFAIRS
October 20, 2011
Exhibit 8

How Are Defined Benefit Pension Fund Assets Invested?

- **The Board of Investments has sole authority to invest pension assets**
- **All pension assets are invested in 6 investment pools**
- **The pools provide an efficient structure with the following benefits:**
  - **They simplify investing and accounting**
  - **They provide diversification for the smaller funds not otherwise be available**
- **Each pool represents a different asset class and the plans own pool units**
- **Board staff sell and purchase units of the pools to:**
  - **Achieve strategic investment goals**
  - **Rebalance within ranges set by the Board**
  - **Ensure cash is available each month to pay benefits**
- **The Board sets the ranges for pension assets in each pool**
- **The Board sets the ranges for different assets types within each pool**
- **The current Board-approved ranges are shown on page 3**

Board-approved Asset Allocations

60 -70% Equities Range

Domestic Equity Pool

Investment Type	Range
Large Cap Core (passive)	10% - 30%
Large Cap Enhanced	20% - 30%
Large Cap Style-Based (long-only)	20% - 30%
Partial Long/Short (130/30)	10% - 20%
Total Large Cap	82% - 92%
Mid Cap	5% - 11%
Small Cap	3% - 8%

International Equity Pool

Investment Type	Range
Large Cap Core (active/passive)	50% - 70%
Large Cap Growth	10% - 20%
Large Cap Value	10% - 20%
Small Cap Core	5% - 15%

Retirement Funds Bond Pool

Investment Type	Range
Domestic High Yield	0% - 15%
International	0% - 10%
Total High Yield/International	0% - 20%
Domestic Core(investment grade)	80% - 100%

30% - 50%	4% - 10%
15% - 30%	9% - 15%
22% - 32%	1% - 5%

Real Estate Pool

Investment Type	Range
Core/Timberland *	35% - 65%
Value Added	20% - 45%
Opportunistic	10% - 30%

* Timberland may not exceed 2% of total pension assets

Private Equity Pool

Investment Type	Range
Leveraged Buyouts	40% - 75%
Venture Capital	10% - 50%
Mezzanine Financing	0% - 10%
Distressed Securities	0% - 40%
Special Situtations	0% - 10%

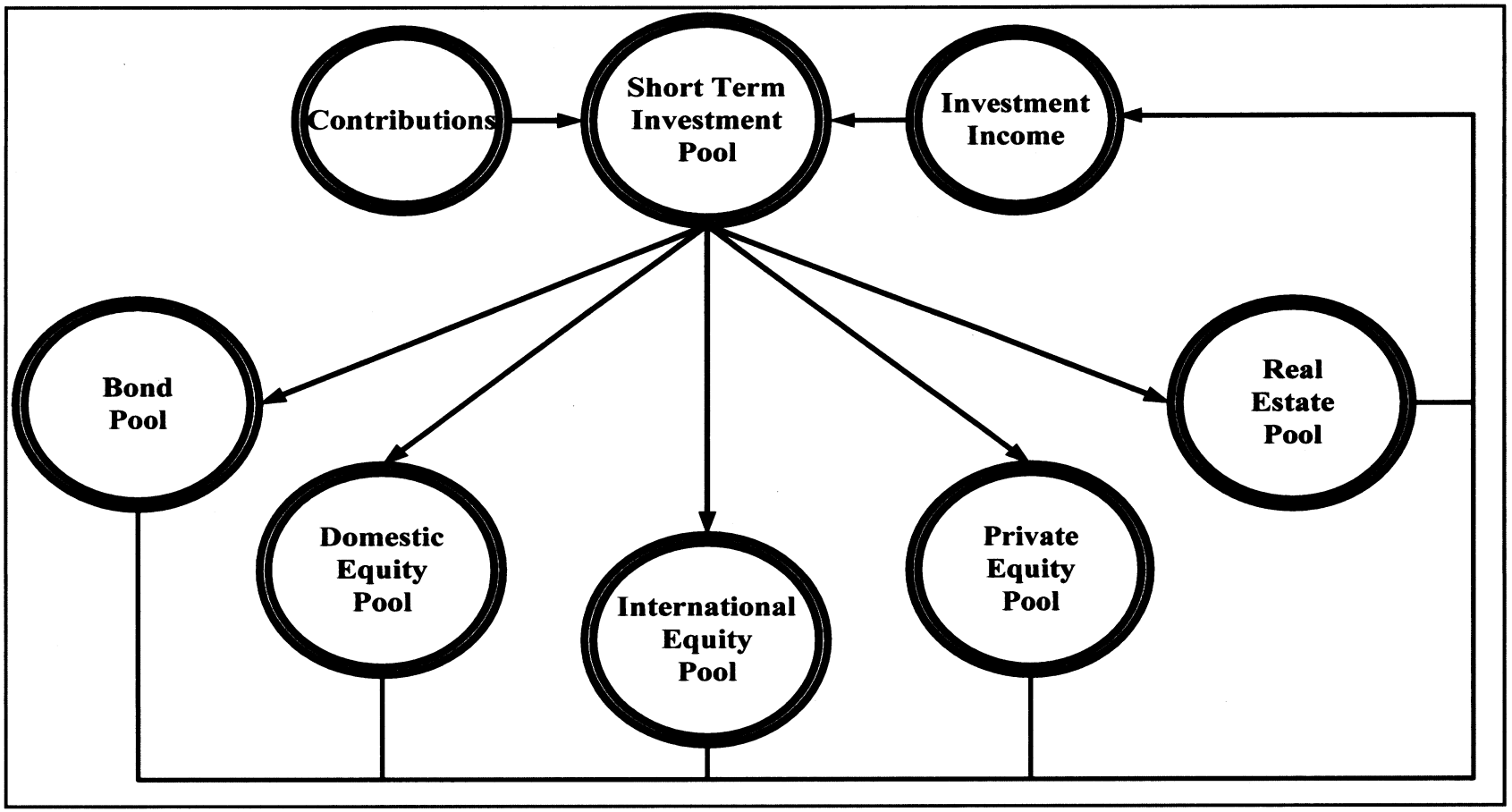
Short Term Investment Pool

Short-term liquid investments
High-quality Investments
24 Hour Liquidity for Participants

Investment Structure

- All pension contributions are deposited in the Short Term Investment Pool
- Pension assets are then moved between pools as necessary to:
  - Achieve strategic investment goals
  - Maintain assets within the Board-approved ranges
  - Provide liquidity
- Interest and dividends generated by the pools are distributed monthly
- All realized gains/losses are retained in the pools
- Pensions do not incur gains/losses from the sale of individual securities
- All pension fund gains/losses incur as result of pool unit sales
- When pool units are sold there may be a gain/loss incurred:
  - If the amount paid for the unit is less than the sale price a capital gain occurs
  - If the amount paid for the unit is more than the sale price a capital loss occurs
- The slide on page 5 depicts the investment structure

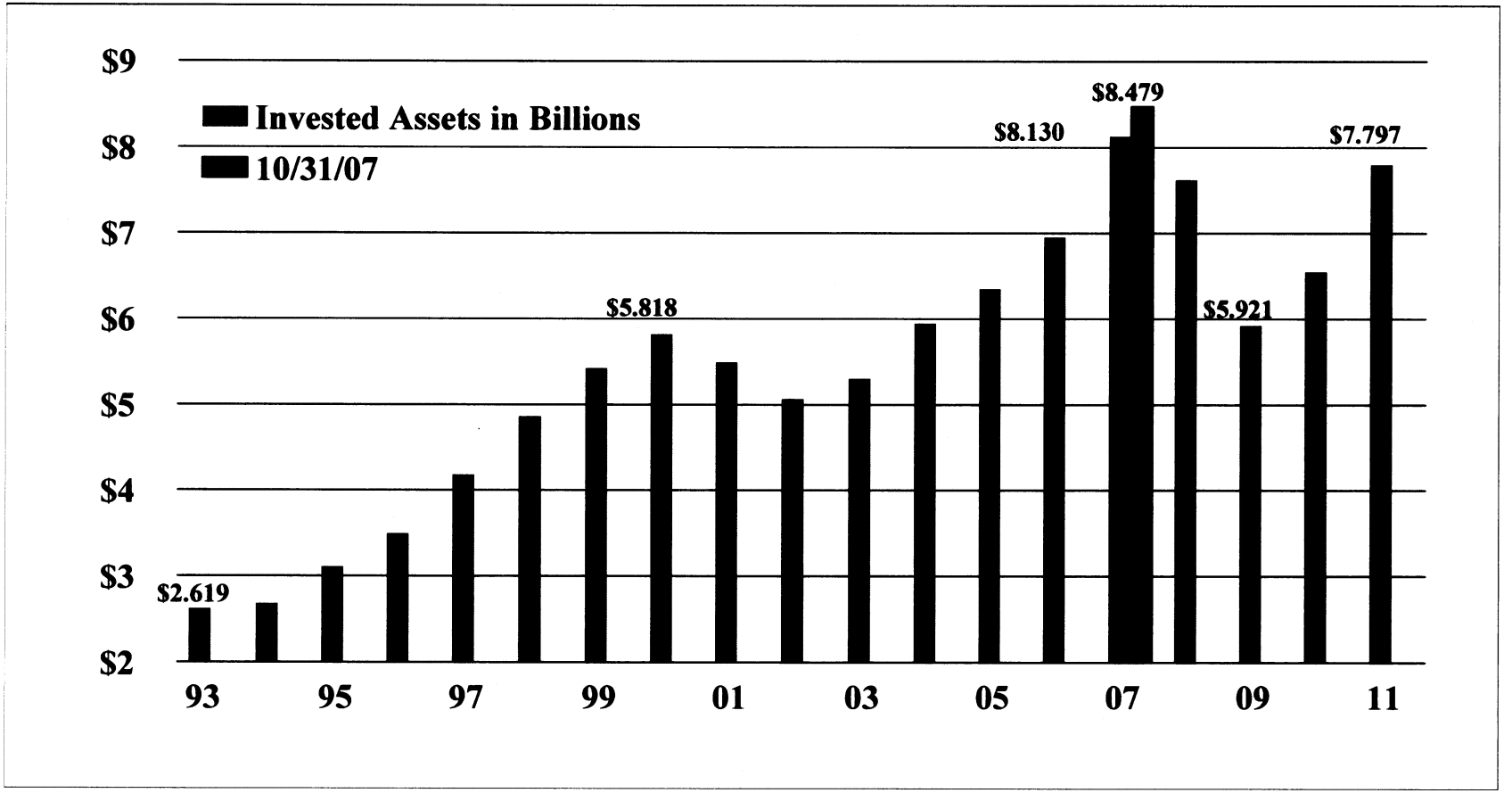
Pension Funds Investment Structure



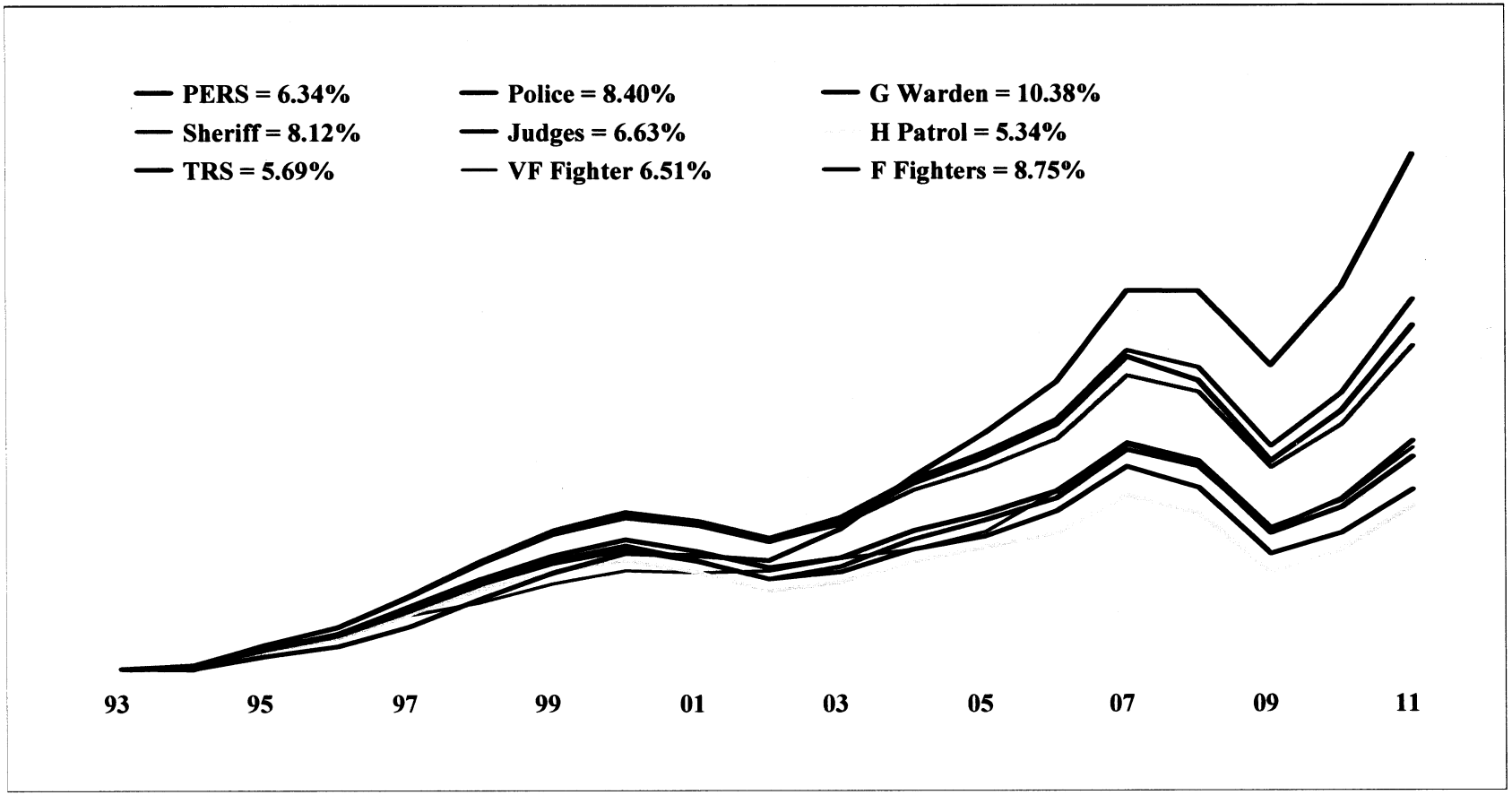
How Do Pension Assets Grow?

- **Pension assets grow over time by:**
  - **Positive investment return on pension assets**
  - **Employee/employer contributions in excess of benefits/expenses (positive cash flow)**
- **When contributions exceed benefits/expenses:**
  - **New defined benefit plans grow rapidly because contributions exceed benefits/expenses**
  - **All investment income is reinvested and will compound over time**
  - **Liquidity is not a major concern in the asset allocation process**
- **When benefits/expenses exceed contributions:**
  - **As defined benefit plans mature benefits/expenses may exceed contributions**
  - **Investment income used to pay benefits is not reinvested and will not compound**
  - **Liquidity must be considered in the asset allocation process**
- **Page 7 shows the invested asset growth of all nine pension funds**
- **Page 8 shows the invested asset growth of each plan**
- **Page 9 shows the invested asset growth from fiscal 2010 to fiscal 2011**

Historical Growth Of Invested Assets By Fiscal Year



Annual % Growth of Individual Pension Invested Assets



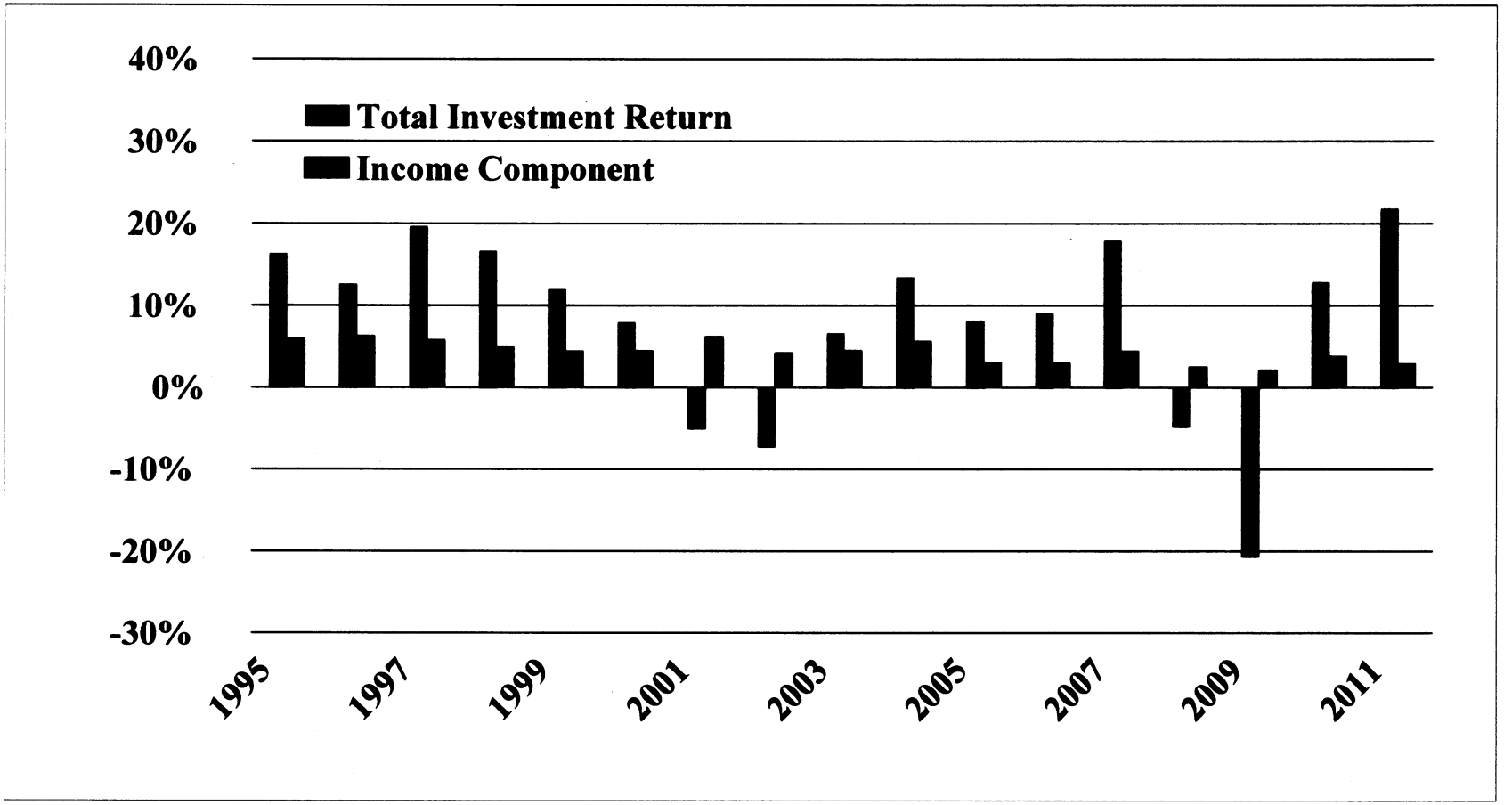
Growth of Invested Assets in Fiscal Year 2011

Public Employees	3,304,243,795	3,930,390,589	626,146,794	18.95%
Teachers	2,491,322,409	2,940,482,398	449,159,989	18.03%
Police	175,814,321	217,067,875	41,253,555	23.46%
Firefighters	173,192,031	215,775,342	42,583,311	24.59%
Sheriffs	172,089,117	210,815,214	38,726,096	22.50%
Highway Patrol	82,525,737	98,521,582	15,995,845	19.38%
Game Wardens	73,774,470	93,925,828	20,151,357	27.31%
Judges	52,400,547	63,496,968	11,096,421	21.18%
Vol Firefighters	22,595,537	27,010,041	4,414,504	19.54%

What Is Investment Return Versus Investment Income?

- **The assumed investment return for all nine plans is 7.75% annually**
- **Investment return and investment income are not synonymous**
- **Investment return is comprised of 2 components:**
  - **Investment "income" (cash received from interest, dividends, realized capital gains/losses)**
  - **Asset "appreciation/depreciation" (non-cash unrealized gains/losses)**
- **The income component of investment return is available to pay benefits**
- **Unrealized gains are not available to pay benefits**
- **Page 11 depicts historical investment return and the income component**
- **The difference between the two bars is unrealized gains/losses**
- **Income was "positive" even when total returns were negative**
- **Negative returns would have been worse without the positive income**

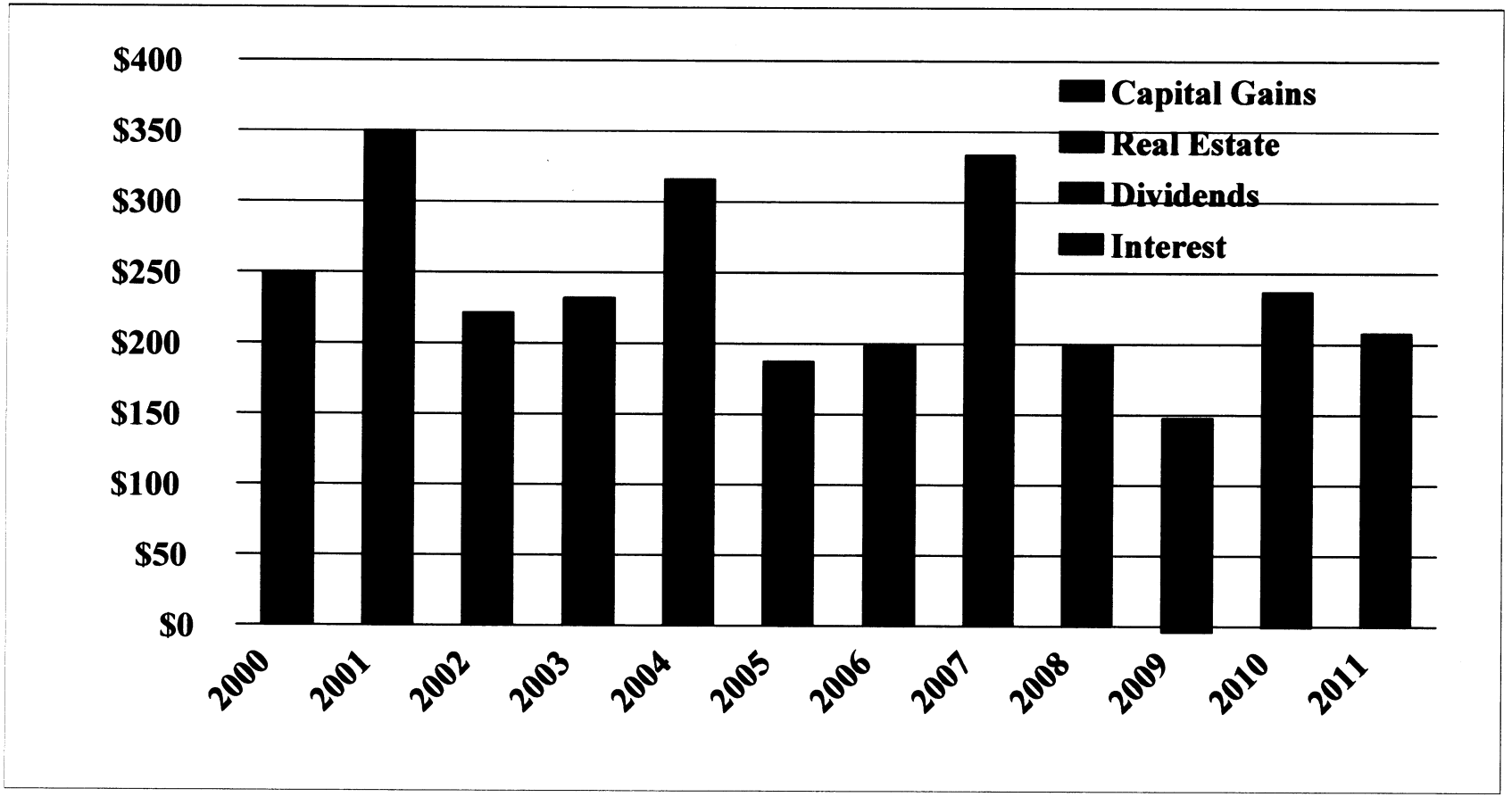
Investment Return & Investment Income By Fiscal Year



Investment Income Components

- **Pension fund investment income is derived from 4 sources:**
  - **Interest/discounts generated by fixed income investments**
  - **Dividends generated by equity type investments**
  - **Income generated by real estate investments**
  - **Capital gains/losses from the sale of investment pool units**
- **Page 13 depicts historical components of investment income**
- **Interest earnings are the most stable income source**
- **Dividend earnings fluctuate based on market conditions**
- **The real estate pool was created in 2006 and has a short income history**
- **Capital gains/losses are the most volatile of all income sources**
- **Small capital losses occurred in 2009**

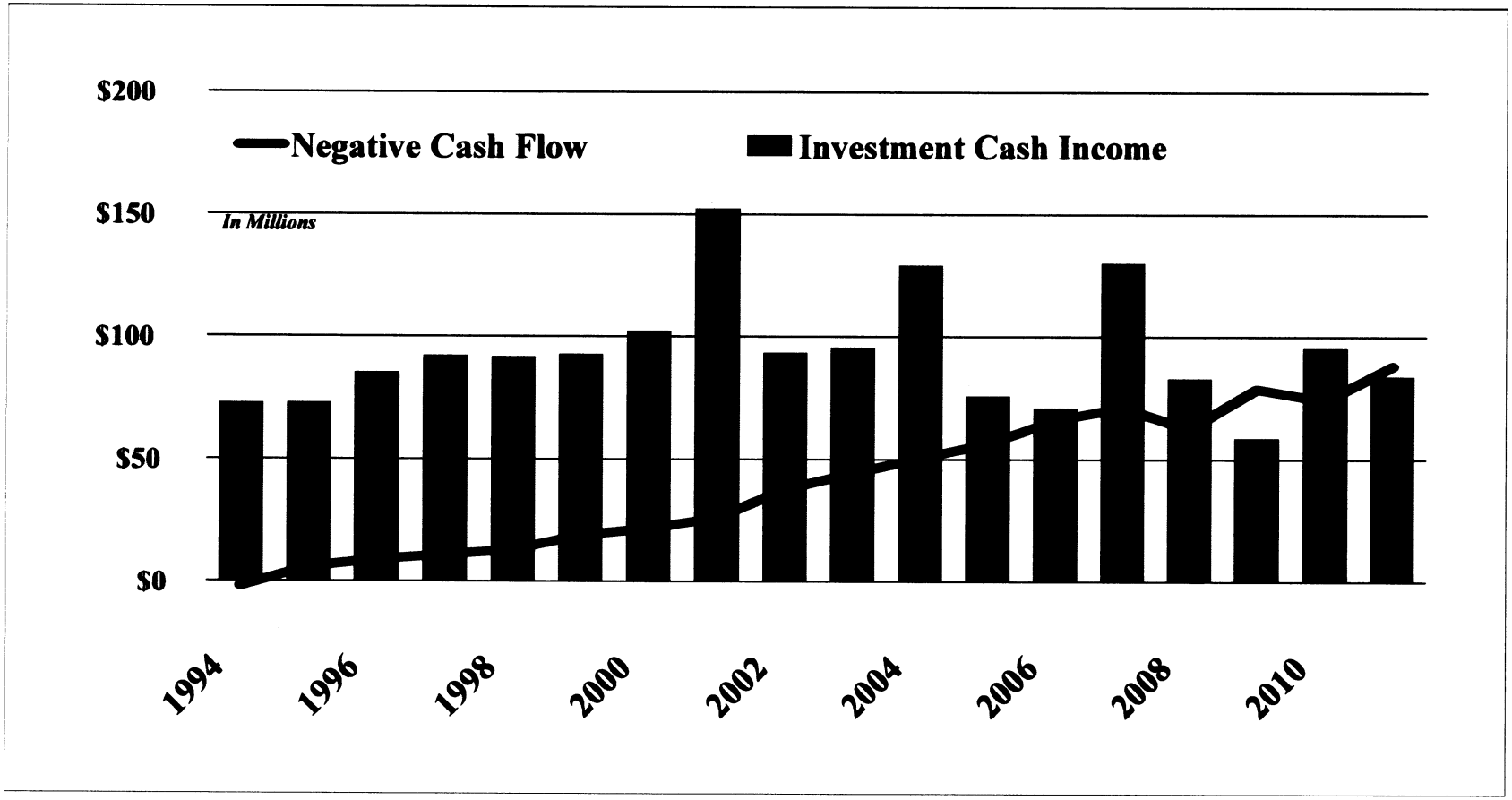
Historical Investment Income By Type



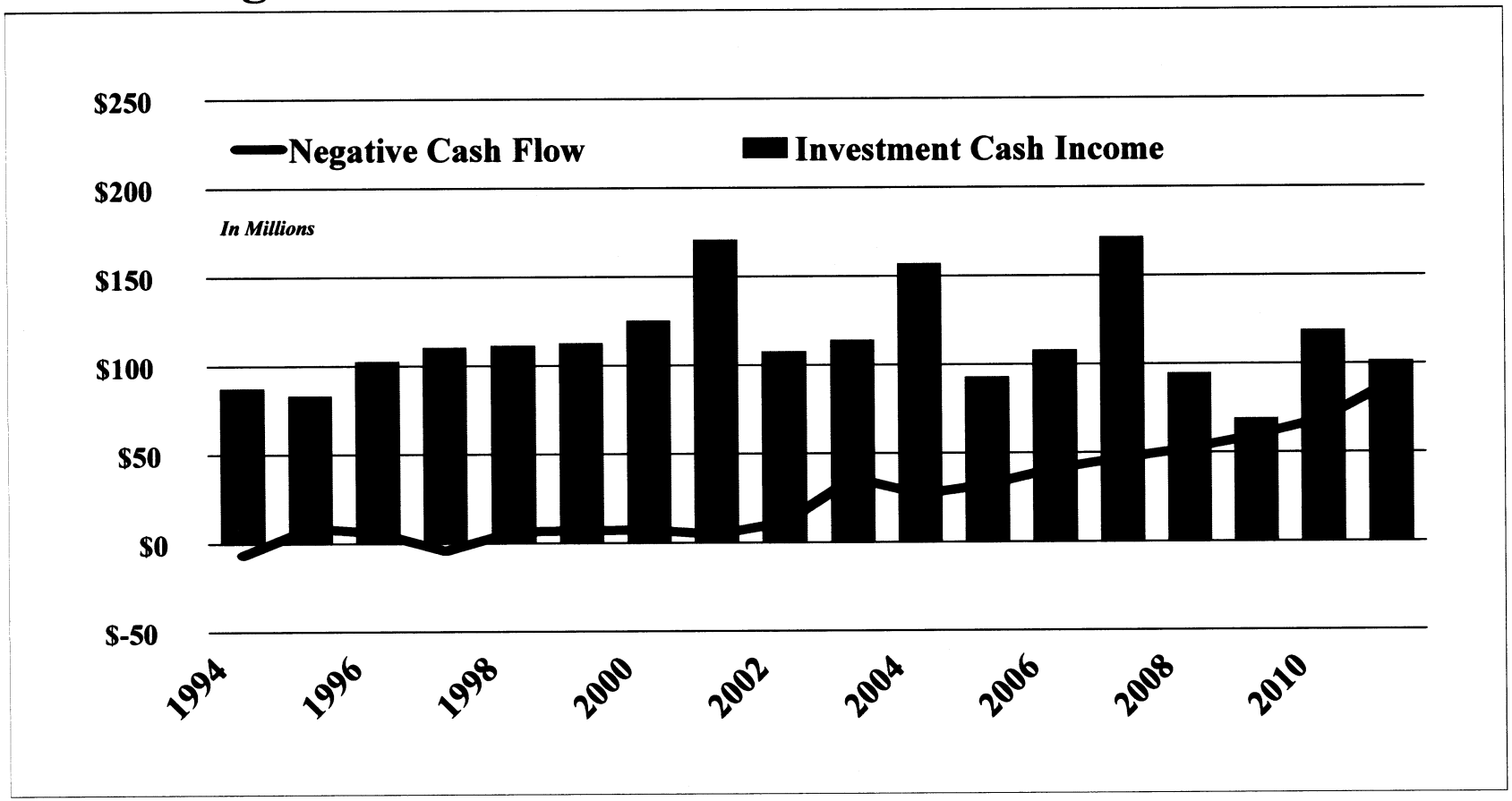
The Impacts of Negative Cash Flow

- **Cash flow available to pay benefits consists of 2 components:**
  - **Cash from employee/employer contributions**
  - **Cash from investment income**
- **Negative cash flow in this report means:**
  - **Benefit/expense payments in excess of contributions**
- **When negative cash flow grows faster than investment income:**
  - **At some point in the future all income will be used to pay benefits**
  - **Once all income is used to pay benefits, assets must be sold to pay benefits**
- **Pages 15 and 16 depict TRS/PERS negative cash flow and investment income**
- **The burgundy line represents that portion of income used to pay benefits**
- **At the beginning of the period no income was used to pay benefits**
- **The slides illustrates that negative cash is growing faster than income**

TRS Negative Cash Flow & Investment Income



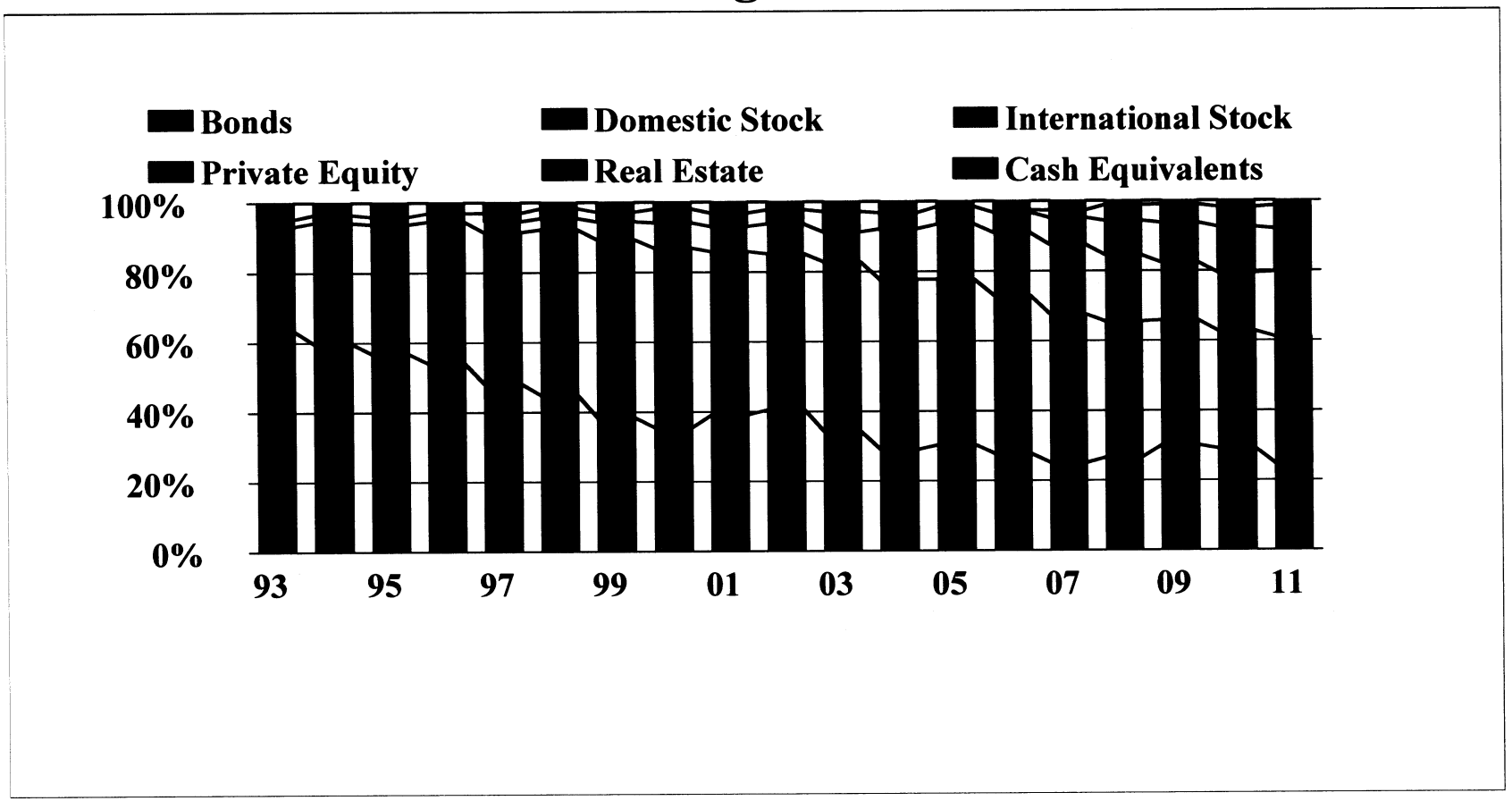
PERS Negative Cash Flow & Investment Income



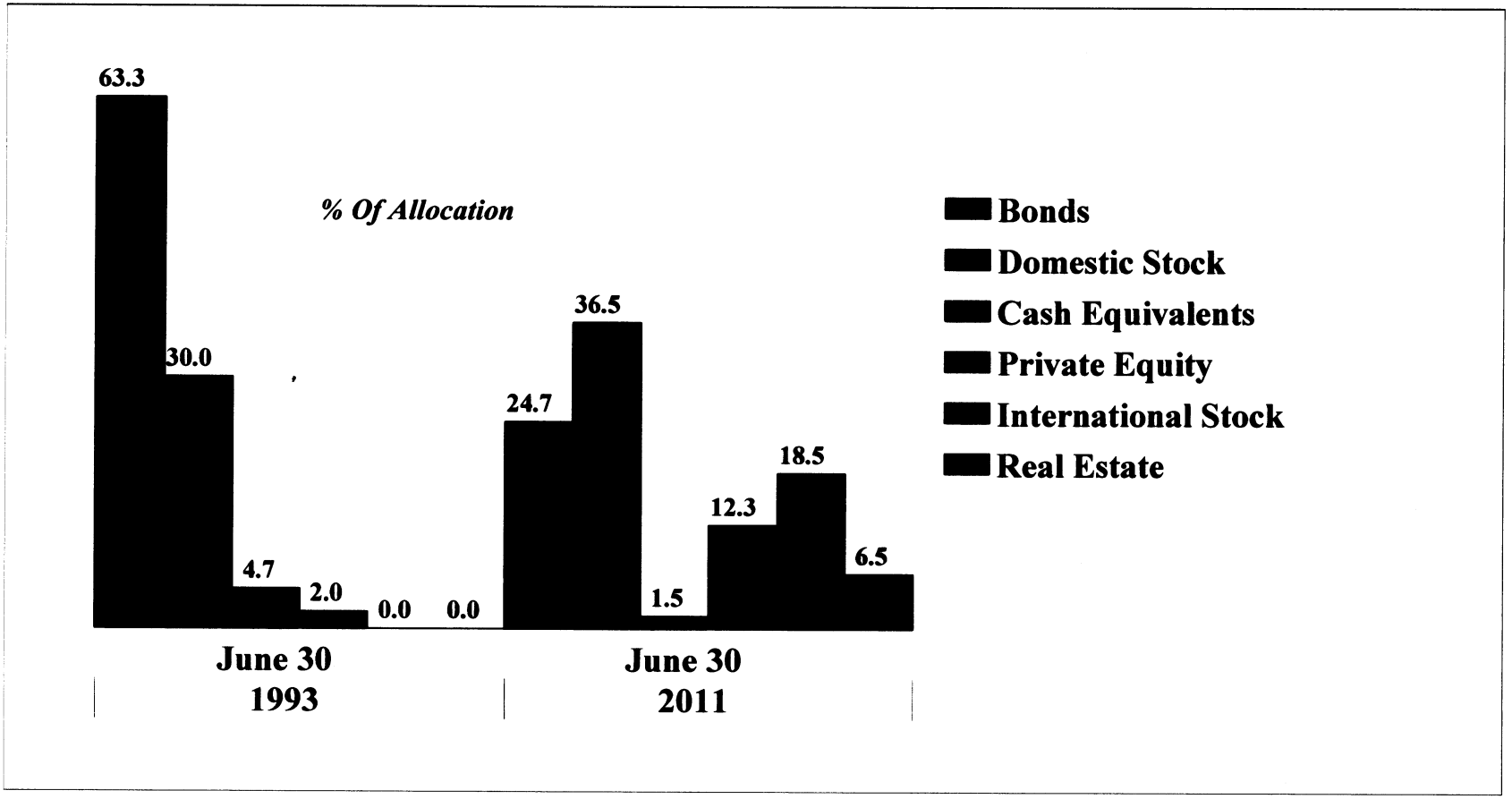
Pension Fund Asset Allocations

- Asset allocation decisions impact returns more than any other factor
- Allocating pension assets is a critical mission of the Board
- The Board allocates assets to:
  - Meet the actuarial return assumptions with a prudent level of risk
  - Provide as much cash income as possible while still generating adequate returns
  - Ensure that there is sufficient liquidity to accommodate cash flow requirements
- Page 18 depicts the changing asset allocation by year
- During the period bond investments decreases while equities increased
- Two new asset classes were added during the period:
  - International equity in 1997 and real estate in 2006
- Page 19 depicts allocations at the beginning and end of the period

Annual Asset Allocation Changes From FY 1993 to FY 2011



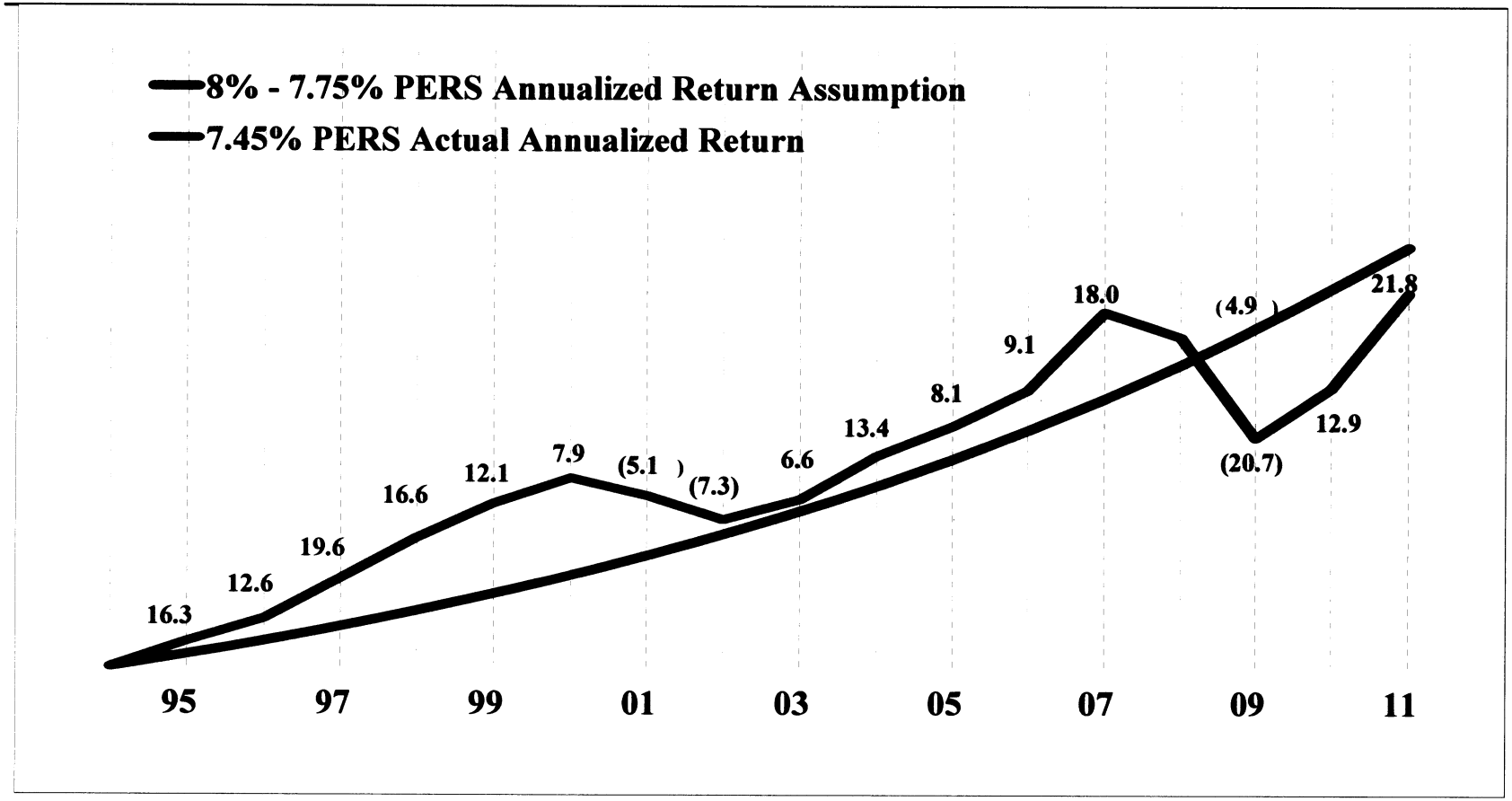
Beginning Period/Ending Period Asset Allocations



Historical Pension Investment Returns

- Investment return is the most critical component of pension funding
- Pension fund actuary valuations assume a 7.75% annual investment return
- A reduction in the assumed return will increase unfunded liabilities
- Page 21 compares the actual PERS returns to the return assumption
- Through 2008 actual annual returns exceeded the assumed return
- By 2011 actual annual returns fell short of the assumed return
- This comparison would be similar for all 9 plans
- Page 22 shows 2011 pension returns by asset type
- The third slide depicts the future returns required to meet the return assumptions over a 30-year period beginning July 1, 1994
- Page 23 shows annualized returns since January 1, 1926 through December 31, 2010 by major public asset type

PERS Actual Returns Versus Return Assumption

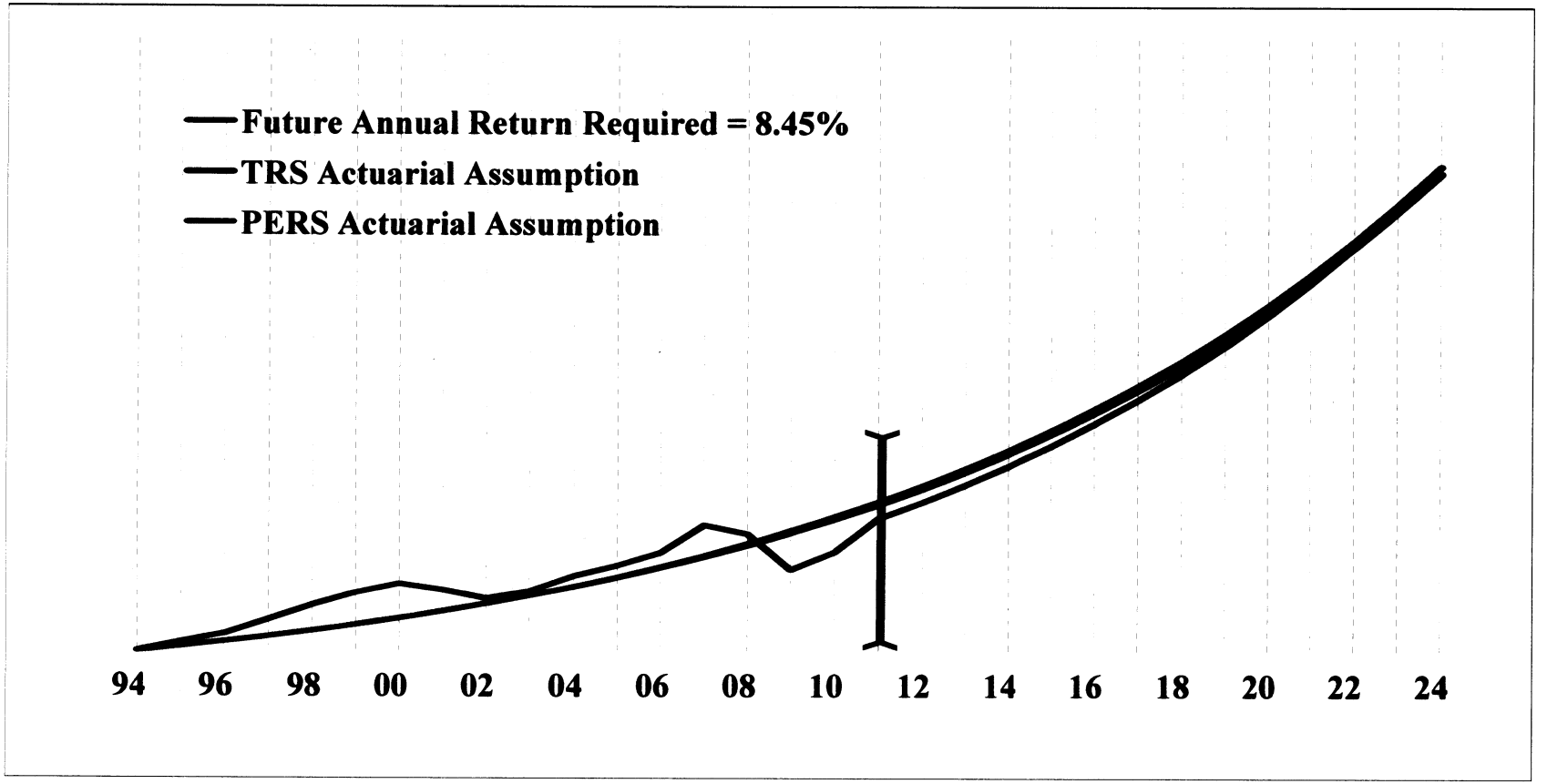


Pension Fund FY 2011 Investment Returns by Asset Type

Domestic Stock	2,846,486,980	36.51%	31.88%
Bonds	1,922,867,078	24.66%	6.78%
International Stock	1,443,960,235	18.52%	30.62%
Private Equity	960,495,202	12.32%	21.56%
Real Estate	508,025,320	6.52%	16.11%
Cash Equivalents	115,651,022	1.48%	0.31%

* Investment Return = Investment Income +/- Unrealized Capital Gains (Losses)

Back on Track Within 30 Years?



Annual Compounded Investment Returns From 1926-2010 *

- **Large Company Domestic Stock** — **9.87%**
- **Small Company Domestic Stock** — **12.07%**
- **Long-Term Government Bonds** — **5.48%**
- **Intermediate-Term Government Bonds** — **5.35%**
- **Long-Term Domestic Corporate Bonds** — **5.93%**
- **US Government Treasury Bills** — **3.62%**

*** From Ibbotson SSBI Market Report December 2010**